Utah Retirement System

Retirement and Independent Entities Interim Committee

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Agenda

- Overview of URS Retirement Benefits
- Actuarial Mathematics and Assumptions
- Financial Condition of URS
- Comparison of Financial Metrics to Other Retirement Systems
- Closing Comments

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Retirement Plans

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Types of Retirement Plans

- Defined Benefit (DB) Plans
  - The plan defines the benefit payable at retirement
- Defined Contribution (DC) Plans
  - The plan defines the contribution provided to the employee's retirement account
- Hybrid Plans
  - A retirement program that combines elements of both DB and DC plans.

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Defined Benefit

- Retirement benefit is defined by a formula
  - Based on a multiplier, service with an employer, and a final average salary
  - Monthly benefit is payable for the duration of the retiree's lifetime
- Example:
  - 2.0% x 30 years x $5,000 final avg. monthly salary
  - $3,000 monthly retirement benefit

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Summary of Benefits – DB Plans

Benefit Feature	Tier I Public Employee	Tier II Hybrid Public Employee
Benefit Multiplier	2.00%	1.50%
Final Average Salary	High 3 Years	High 5 Years
Retirement Eligibility	Age 65 & 4 YOS; or 30 YOS	Age 65 & 4 YOS; or 35 YOS
Annual COLA Limit	4.00%	2.50%
Early Retirement	Age 60 & 20 YOS; or 25 YOS	Age 60 & 20 YOS

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Defined Contribution

- Retirement benefit is defined by the annual contributions into an account balance plus investment earnings
  - Contributions are stated as percent of compensation (e.g. 10% for Tier II DC Public Employees)
  - Employee often directs the investments
  - The vested account balance is available for distribution at retirement

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Assessment of Plan Types

Benefit Feature	Defined Benefit	Defined Contribution
Cost Volatility	Can Vary From Year to Year	Stable From Year to Year
Investment Risk/Reward	Employer	Employee
Longevity and Inflation Risk	Employer	Employee
Payment Form	Monthly Annuity	Lump Sum
Retirement Resource Predictability	Very Predictable	Unpredictable

Note: The employees will share in the investment and longevity risk under the Tier II Hybrid Retirement Plan.

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Risk Characteristics of a Defined Benefit Plan

- Investment Risk (Actual Returns Less than Expected)
- Mortality Risk (Retirees Living Longer than Expected)
- Inflation Risk (COLA based on CPI)

- Tier I Plans: employees hired prior to July 1, 2011
  - Employer bears most of the risks
  - Benefits are defined (predictable)
- Tier II Plans: employees hired after June 30, 2011
  - The employer's cost is fixed
  - The employees share the risk
  - Benefits are variable

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Introduction to Actuarial mathematics

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Basic Funding Equation

- Where:
  - C is Contributions
  - I is Investment Return
  - B is Benefits Paid

"Money In = Money Out"

Why Prefund?
Example for an Individual

Age 45 (Mid Career)

- **Monthly Salary: $3,840**
- **Service: 15 years**
- **Monthly Pension Benefit: $1,110**
- **Liability: $136,000**

Retire at Age 60

- **Monthly Salary: $6,200**
- **Service: 30 years**
- **Monthly Pension Benefit: $3,620**
- **Liability: $621,000**

Hired at Age 30

- **Monthly Salary: $1,800**
- **Service: 0 years**
- **Accrued Monthly Benefit: $0**
- **Liability: $0**

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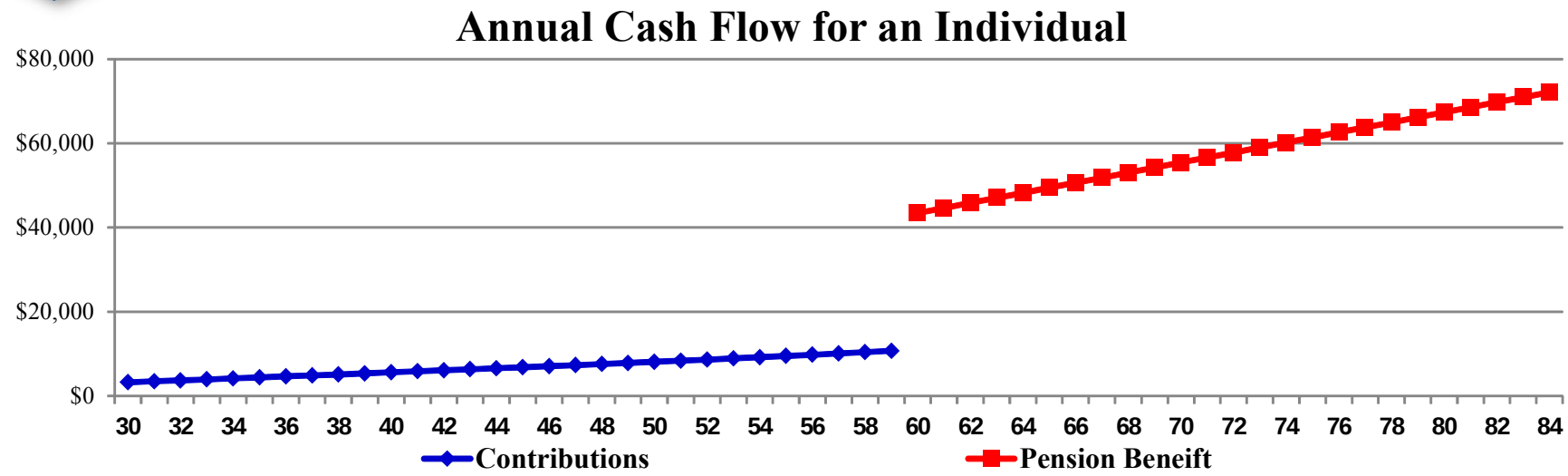
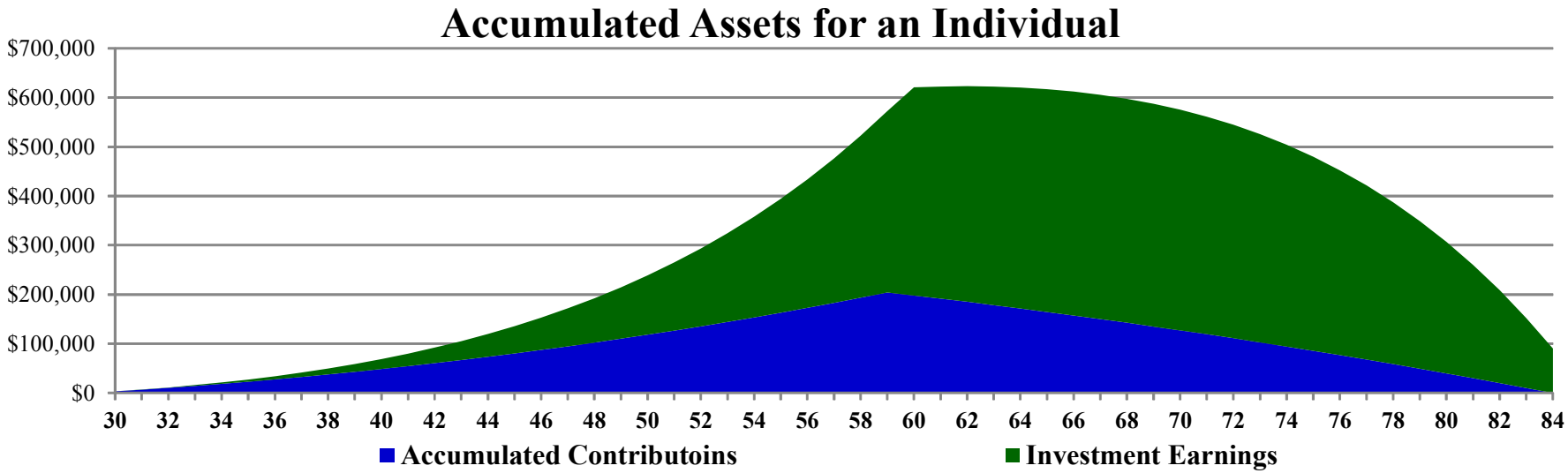
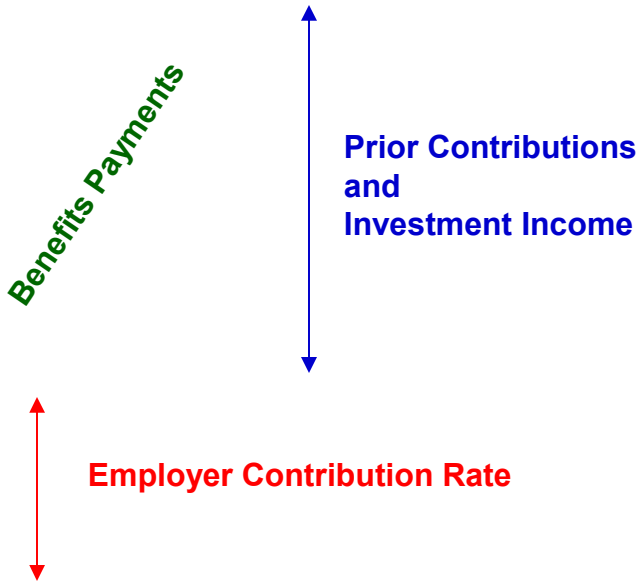
Why Prefund?
Example for an Individual





Why Prefund?
Tier II Public Employee Hybrid Plan



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Projected Active Membership

Note: The projected total number of employees after the Year 2012 is assumed to remain a constant 72,082. The projected Tier II employees includes employees participating in the Tier II Hybrid Retirement Plan and the Tier II Defined Contribution Plan.

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Actuarial Assumptions

Principal Actuarial Assumptions

- Economic Assumptions
  - Price inflation (CPI): 2.75%
  - Salary increases (for individuals): 5.00% (varies)
  - Investment return: 7.50%
- Demographic Assumptions
  - Pre-retirement turnover
  - Disability
  - Retirement
  - Mortality

Demographic assumptions vary by gender and employee type (e.g. general employees, teachers, public safety, and firefighters).

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Inflation

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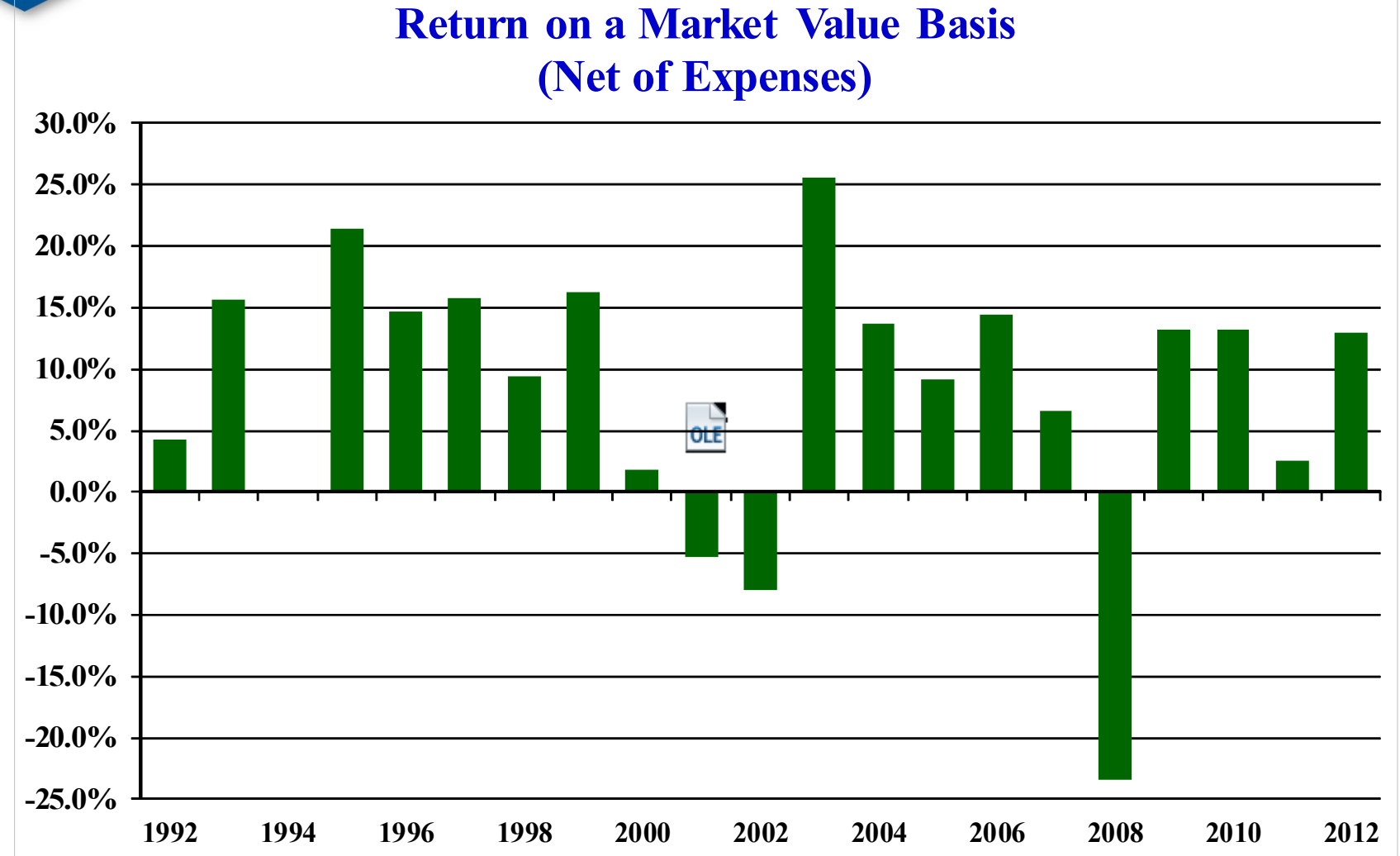
Inflation

- URS's inflation assumption: 2.75%
- Forward-looking inflation benchmarks
  - Investment firms: 2.02% - 3.00%
    - Callan assumes a 2.50% inflation assumption
  - Social Security Trustee's Report: 2.80% (intermediate)
  - TIPs vs. Nominal US Treasuries: 2.54%
  - Professional forecasters survey: 2.40% average
  - Public Funds Survey: 3.50% median

Historical Investment Experience



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Investment Return Assumption

- Map URS's asset allocation to forward-looking capital market expectations

Asset Category	Target Allocation
Domestic Equities	23%
Global & International Equities	17%
Domestic Fixed Income	12%
Global & International Fixed Income	8%
Real Assets	13%
Private Equity	9%
Absolute Return	18%

- Use capital market return assumptions from six recognized investment consulting firms:
  - Callan (URS's consultant)
  - Hewitt Ennis Knupp
  - R. V. Kuhns
  - PCA
  - NEPC
  - Towers Watson

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Investment Return Assumption

The average expected annual nominal return is 7.62%

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return (2)–(3)	Actuary Inflation Assumption	Expected Nominal Return (4)+(5)	Plan Incurred Expense Assumption	Expected Nominal Return Net of Expenses (6)-(7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Callan	**7.90%**	**2.50%**	**5.40%**	**2.75%**	**8.15%**	**0.35%**	**7.80%**
1	7.59%	3.00%	4.59%	2.75%	7.34%	0.35%	6.99%
2	7.35%	2.75%	4.60%	2.75%	7.35%	0.35%	7.00%
3	7.43%	2.40%	5.03%	2.75%	7.78%	0.35%	7.43%
4	7.54%	2.50%	5.04%	2.75%	7.79%	0.35%	7.44%
5	8.71%	2.02%	6.69%	2.75%	9.44%	0.35%	9.09%
Average	**7.75%**	**2.53%**	**5.22%**	**2.75%**	**7.97%**	**0.35%**	**7.62%**

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Investment Return Assumption

20-Year Geometric Return Distribution

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return			Probability of exceeding 7.75% *
	25th	50th	75th	
(1)	(2)	(3)	(4)	(5)
Callan	**5.09%**	**7.01%**	**8.96%**	**39.9%**
1	4.99%	6.50%	8.03%	29.1%
2	4.99%	6.51%	8.04%	29.2%
3	5.71%	7.05%	8.40%	36.2%
4	5.34%	6.91%	8.51%	36.1%
5	6.78%	8.48%	10.21%	61.3%
Average	**5.48%**	**7.07%**	**8.69%**	**38.6%**

*Plan's 2011 return assumption net of expenses.

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Investment Return Assumption

- Other considerations in the assumption selection process
  - The capital market assumptions used in the analysis have a 7 to 10 year forecast horizon, significantly shorter than URS's investment horizon
  - Return expectations have been reduced 0.30% for investment expenses without any advance recognition of the benefits for active management strategies

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Comparison to Other Systems

URS: 7.50%

Source: 2012 Public Funds Survey (n = 126)
Median: 8.00%

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Investment Return Assumption

- The FY 2014 contribution rate for the State and School Fund is 20.46% of pay
  - Expected contributions of $614M
- A 7.00% investment return assumption would increase the FY 2014 contribution rate to 24.06%
  - Expected contributions of $724M ($110M increase)
- The retirement system would attain a 100% funded ratio sooner if investment returns are more favorable than assumed

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National Life Expectancy Statistics

States with the Longest Life Expectancy		
1	Hawaii	81.5
2	Minnesota	80.9
3	California	80.4
4	New York	80.4
5	Connecticut	80.2
6	Massachusetts	80.1
7	North Dakota	80.1
8	**Utah**	**80.1**
9	Colorado	80.0
10	Arizona	79.9

States with the Shortest Life Expectancy		
41	Georgia	77.1
42	South Carolina	76.6
43	Tennessee	76.2
44	Kentucky	76.2
45	Arkansas	76.1
46	Oklahoma	75.6
47	Louisiana	75.4
48	Alabama	75.2
49	West Virginia	75.2
50	Mississippi	74.8

Source: American Human Development Project's Second National Report.

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Post-retirement Mortality

Retiree Group	Life Expectancy of an Age 65 Retiree				
	2015	**2020**	**2025**	**2030**	**2035**
Educators					
Male	87.3	87.6	87.9	88.2	88.5
Female	88.0	88.2	88.3	88.5	88.7
Non-Educators (Including Public Safety / Fire)					
Male	85.3	85.6	86.0	86.3	86.6
Female	87.2	87.3	87.5	87.7	87.9

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Actuarial Definitions

- Normal Cost
  - Value of this year's benefit accrual
- Actuarial Accrued Liability (AAL)
  - Liability attributable to prior service
- Market Value of Assets
  - Fair value of assets in the trust
- Actuarial Value of Assets
  - A calculated asset value that dampens the investment volatility

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Summary of 2012 Valuation Results

Item	Local Government Public Employee (Fund 15)	State & School Public Employee (Fund 16)
(1)	(2)	(3)
1. Projected payroll	$916	$3,065
Funded Status Information		
2. Actuarial accrued liability	$3,777	$16,966
3. Actuarial value assets	3,029	13,586
4. Unfunded actuarial accrued liability (UAAL)	$748	$3,380
5. Funded ratio (Item 3. / Item 2.)	80%	80%
Development of the Contribution Rate		
6. Normal Cost Rate	11.71%	12.12%
7. Amortization of the UAAL*	5.49%	8.25%
8. Total contribution rate	17.20%	20.37%

* As of January 1, 2012, the UAAL is financed over a 22 year period.

$ in millions

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Why is there a UAAL?

- If contributions have been made equal to the actuarially determined contribution for the life of the fund, why is there an unfunded actuarial accrued liability (UAAL)?
  - Benefit increases granted and provided to past service
  - Change in actuarial assumptions
  - Experience differing from expectations (assumptions)

Funding Unfunded Liability

- Contribution rates are established by a Board of Trustees
  - Rates are more likely to change from year to year
  - Rates are more likely to be actuarially sound
- Contribution rates are established by state statute
  - Rates tend to be more stable from year to year
  - Rates for some retirement systems are below an actuarially sound contribution rate

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Utah Retirement System's Experience

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Liability and Assets – Public Employee State and School

(as of January 1)

Note: Assumes a 7.50% annual return on the market value of assets for years after 2013.

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Unfunded Liability as a % of Pay – Public Employee State and School

Note: Assumes a 7.50% annual return on the market value of assets for years after 2013.

Contribution Rate – Public Employee State and School

Fiscal Year Contribution Rate

Note: Assumes a 7.50% annual return on the market value of assets for years after 2013.

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Liability and Assets – Public Employee Local Government

(as of January 1)

Note: Assumes a 7.50% annual return on the market value of assets for years after 2013.

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Unfunded Liability as a % of Pay – Public Employee Local Government

Note: Assumes a 7.50% annual return on the market value of assets for years after 2013.

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Contribution Rate – Public Employee Local Government

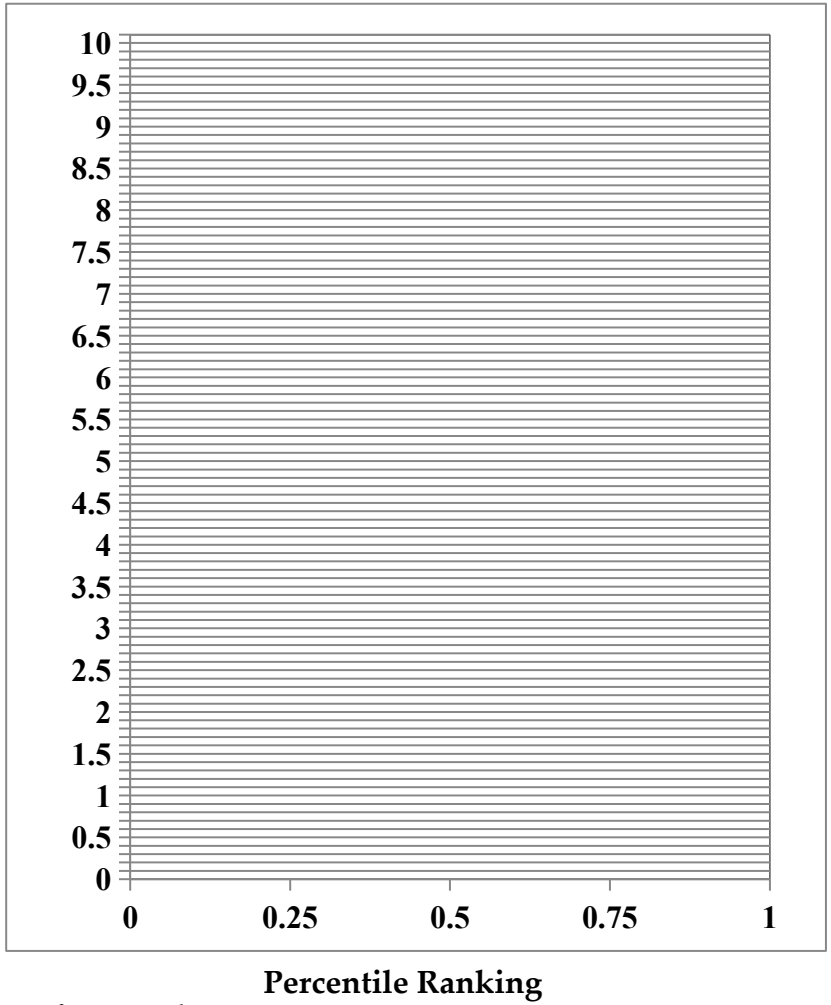
Contribution Rate in effect for Fiscal Year

Note: Assumes a 7.50% annual return on the market value of assets for years after 2013.

Comparison of Financial Metrics to Other Retirement Systems

Benchmarking - Funded Ratio

- The funded ratio of URS ranks in the 63th percentile of a comparison with other large public employee retirement systems
  - URS – 79.5%
  - 75th percentile – 83.4%
  - 50th percentile – 73.5%
  - 25th percentile – 63.7%



Source: Public Funds Survey, survey excludes public safety and firefighter retirement systems.

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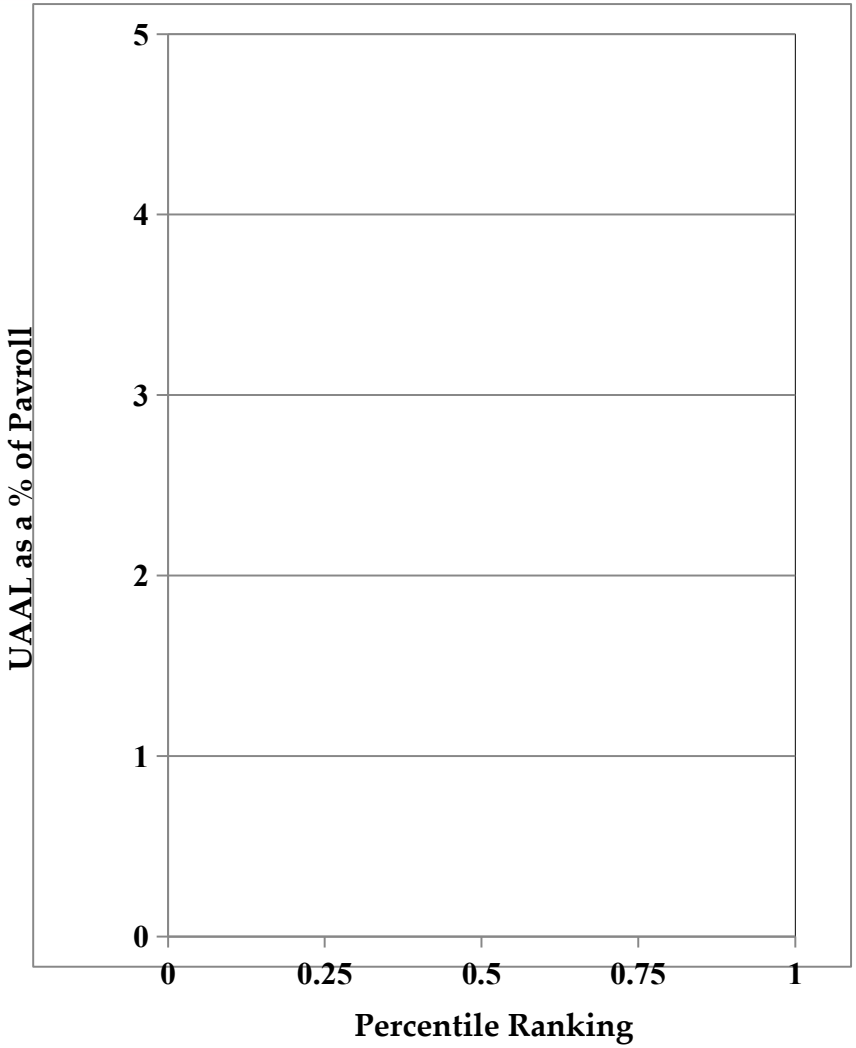
Benchmarking – Unfunded Liability as a % of Payroll

- The unfunded actuarial accrued liability as a percent of payroll. URS ranks in the 41th percentile of a comparison with other large public retirement systems

  - URS – 122%

  - 25th percentile – 87%
  - 50th percentile – 141%
  - 75th percentile – 220%



Source: Public Funds Survey, survey excludes public safety and firefighter retirement systems.

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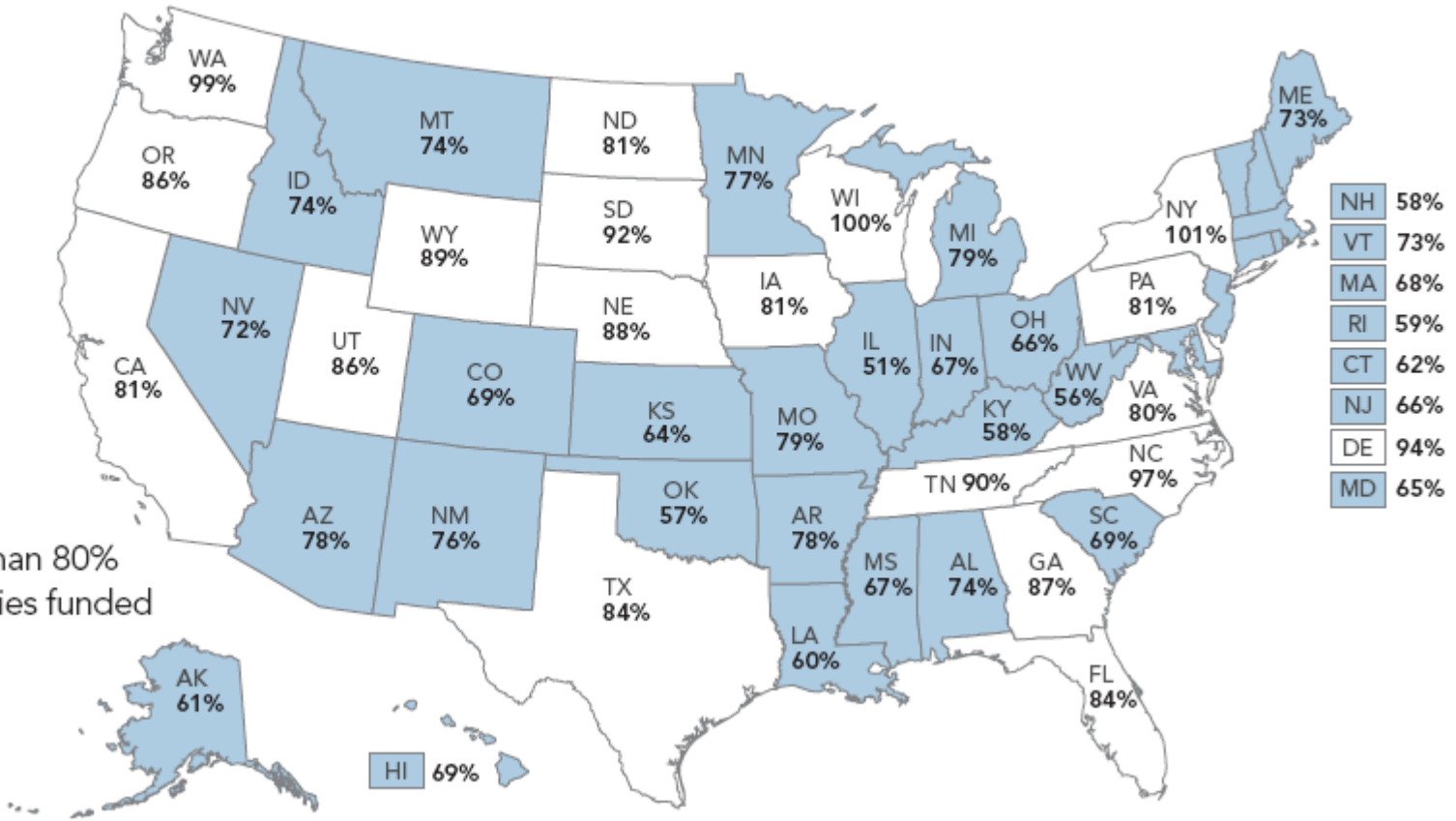
Funding Unfunded Liabilities

States' Public Sector Pensions 78% Funded in FY09

Thirty-one states were below the 80 percent funded threshold for a well-funded pension system.



Source: The Widening Gap: The Great Recession's Impact on State Pension and Retiree Health Care Costs, a report by The PEW Center on the States, 2011. For More Detailed Information: see Appendix - I.

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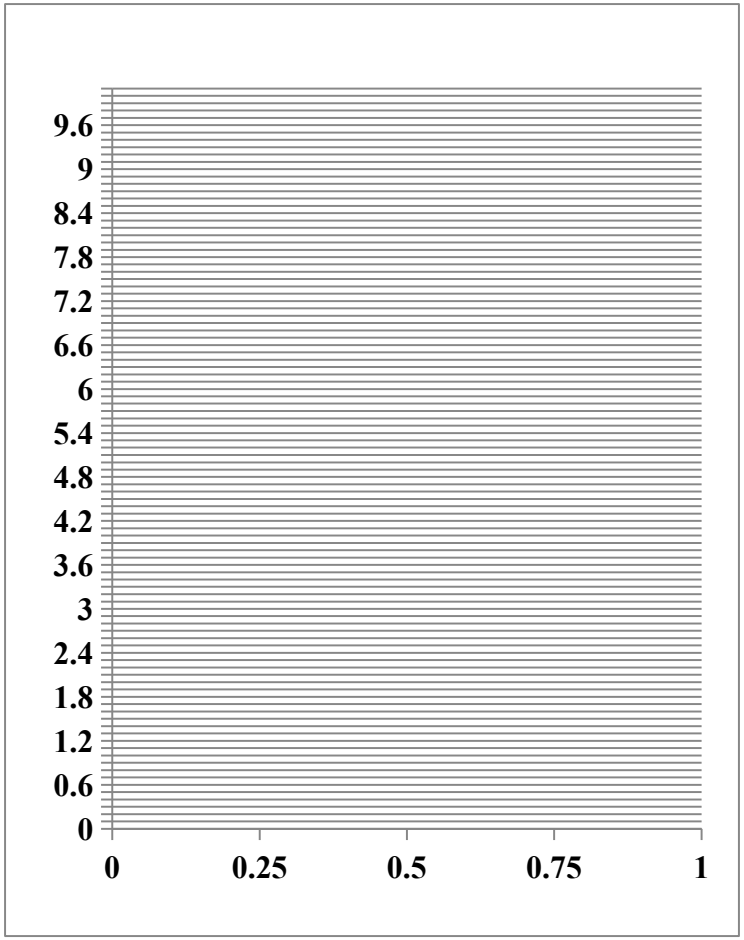
Benchmarking – Contribution Rates Public Employee Retirement Systems

- The total contribution rate (employee plus employer) for public employee retirement systems. URS ranks in the 58th percentile of a comparison with other public employee retirement systems
  - URS – 18.76% (Tier I State and School)
  - 25th percentile – 12.71%
  - 50th percentile – 16.95%
  - 75th percentile – 21.80%



Source: Public Funds Survey, excludes public safety and firefighter plans (n=111). Contributions rates do not include the cost of a defined contribution plan or Social Security Benefits.

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Closing Comments

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Closing Comments

- The benefits provided by URS are financially secure
- There is a detailed and methodical process for identifying the actuarial assumptions used in the valuation
- The new accounting standards will expand the disclosure requirements for the Retirement System and participating employers

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Closing Comments

- Managing the cost risk
  - Employers will continue to be subject to risk with regard to benefits in the Tier I Retirement Systems
  - The employer's cost is fixed with regard to employees earning benefits in the new Tier II Retirement System
- URS has a relatively strong funding policy
  - As of January 1, 2013, the unfunded actuarial accrued liability is funded over a 21-year period
  - The Board has the authority to maintain the contribution rates if the fund is less than 110% funded

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Questions

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